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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR   | ATTORNEY DOCKET NO.                   | CONFIRMATION NO.       |
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| 10/784,102  | 02/20/2004  | Vidyadhar Sitaram Kale | 0025-013                              | 6911                   |
| 40972 7590 12/05/2007<br>HENNEMAN & ASSOCIATES, PLC<br>714 W. MICHIGAN AVENUE<br>THREE RIVERS, MI 49093 |             |                        | EXAMINER<br>DURNFORD GESZVAIN, DILLON |                        |
|   |             |                        | ART UNIT<br>2622                      | PAPER NUMBER           |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/784,102

Applicant(s)

KALE ET AL.

Examiner

Dillon Durnford-Geszvain

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. Claims **1-48** are pending and claims **1, 9, 27, 38, 39** and **41** are amended.

### *Response to Arguments*

3. Applicant's arguments with respect to claims **1-48** have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Objections*

4. Claim **1** is objected to because of the following informalities: in line 5 "integrated circuit chip" should be --camera integrated circuit chip--. Appropriate correction is required.
5. Claim **8** is objected to because of the following informalities: in line 2 "integrated circuit chip" should be --camera integrated circuit chip--. Appropriate correction is required.
6. Claim **10** is objected to because of the following informalities: in lines 2 and 3 "integrated circuit" should be -- integrated camera circuit --. Appropriate correction is required.

7. Claim **13** is objected to because of the following informalities: in line 2 "integrated circuit" should be -- integrated camera circuit --. Appropriate correction is required.

8. Claim **14** is objected to because of the following informalities: in lines 2 and 3 "integrated circuit chip" should be -- integrated camera circuit --. Appropriate correction is required.

9. Claim **47** is objected to because of the following informalities: in lines 2 "camera integrated circuit" should be -- integrated camera circuit --. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

10. Claim **24** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claim **24** recites the limitation "the step of placing" in line 2 and "the step of molding" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim **23** may implicitly suggest that placing a protective cover over the integrated circuit is a step in a method, but it is not specifically called a step and therefore claim **24** lacks antecedent basis for "the step of placing."

Claim **17** may implicitly suggest that molding a receptacle over an integrated circuit is a step in a method, but it is not specifically called a step and therefore claim **24** lacks antecedent basis for "the step of molding."

12. Claims **40** and **42-44** recite the limitation "the step of molding" in line 2.

There is insufficient antecedent basis for this limitation in the claims.

***Claim Rejections - 35 USC § 103***

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. Claims **1-16, 27, 28, 30-39** and **46-48** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 7,199,438 (Appelt).

15. As to claim **1** Appelt teaches a camera module apparatus, comprising:

a camera integrated circuit chip 420 (see Fig. 5 and Column 3 lines 45-53);

a window 442; and

a molding 430 made on the camera integrated circuit chip 420 for holding the lens such that the window 442 such that the window 442 is positioned thereby in relation to the camera integrated circuit chip 420 (see Column 2 lines 47-55 and note that the encapsulant 430 is made in a similar fashion to the encapsulant 130, further see Column 3 lines 61-63).

What Appelt does not teach in the present embodiment is that the window 442 is a lens. However, Appelt teaches in another embodiment replacing a planar window with a lens (see Fig. 4 and Column 3 lines 33-44). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the window 442 with a lens as this would

increase the intensity of light on the camera integrated circuit chip 420.

As to claim 2, see the rejection of claim 1 and note that Appelt further teaches the camera module apparatus of claim 1, wherein:

the camera integrated circuit chip 420 is mounted on a printed circuit board 412 (see Column 2 lines 32-44 and Column 3 lines 48-50 and note that the Examiner is interpreting the substrate 112 to be a PCB; note that Column 2 lines 41-44 state that the board 112 can be electrically connected to an external PCB and the Examiner takes this as evidence that 112 is a PCB, further as the substrate 112 is mounted on a PCB the camera integrated circuit chip would be mounted vicariously to said PCB).

As to claim 3, see the rejection of claim 1 and note that Appelt further teaches the camera module apparatus of claim 1, further comprising:

a protective cover 440 over the integrated circuit chip 420 (see Fig. 5 and note that the claim does not require that the cover is disposed over the entire chip).

As to claim 4, see the rejection of claim 3 and note that Appelt further teaches the camera module of claim 3, wherein: the protective cover 440 is a molded spacer (see Fig. 5 and note that it is inherent for the cover 440 to be molded at some point because it has a particular shape, and it provides a space between the window/lens and the chip).

As to claim 5, see the rejection of claim 3, and note that Appelt further teaches the camera module apparatus of claim 3, wherein:

the protective cover is a glass sheet (see Column 3 lines 54-57 and note that at least one type of acrylate is commonly recognized as being glass, for example, Plexiglass ® is referred to as an acrylic glass, see <http://zenith.czechtrade.us/acrylic-glass>).

As to claim 6, see the rejection of claim 1 and note that Appelt further teaches the camera module apparatus of claim 1, wherein:

the molding 430 has a recess for the lens (see Fig. 5).

As to claim 7, see the rejection of claim 1 and note that Appert further teaches the camera module apparatus of claim 1, wherein:

the lens is held in place on the molding 430 by an adhesive 440 (see Column 3 lines 54-63, and Fig. 5; and note that the window/lens 442 is held by an adhesive 440 and is on the molding 430).

As to claim 8, see the rejection of claim 1 and note that Appert further teaches the camera module apparatus of claim 1, wherein:

the molding 430 has a recess for positioning the window/lens 442 relative to the camera integrated circuit chip (see Fig. 5).

As to claim 9 Appelt teaches an integrated camera circuit and lens module, comprising:

a camera integrated circuit chip 420 (see Fig. 5 and Column 3 lines 45-53);

a holder 430 made at least partially on the camera integrated circuit (see Column 2 lines 47-55 and note that the encapsulant 430 is made in a similar fashion to the encapsulant 130, further see Column 3 lines 61-63); and

a window 442; and wherein

the window is affixed to the camera integrated circuit via the holder 430 (see Fig. 5).

What Appelt does not teach in the present embodiment is that the window 442 is a lens. However, Appelt teaches in another embodiment replacing a planar window with a lens assembly (see Fig. 4 and Column 3 lines 33-44). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the window 442 with a lens as this would increase the intensity of light on the camera integrated circuit 420.

As to claim 10, see the rejection of claim 9 and note that Appelt further teaches the integrated camera circuit and lens module of claim 9, wherein:

the window/lens assembly 442 is rigidly affixed to the integrated camera circuit via the holder 430 such that there is a gap between at least a portion of the lens assembly and a sensor array 422 (see Column 2 lines 37-41 and note that the circuit 412 has imaging sensors) of the integrated camera circuit (see



Fig. 5).

As to claim **11**, see the rejection of claim **9**, and note that Appelt further teaches the integrated camera circuit and lens module of claim **9**, wherein:

the holder 430 is a molded component (see Column 2 lines 47-55 and note that the encapsulant 430 is made in a similar fashion to the encapsulant 130, further see Column 3 lines 61-63).

As to claim **12**, see the rejection of claim **11**, and note that Appelt further teaches the integrated camera circuit and lens module of claim **11**, wherein:

the window/lens assembly is attached to the holder 430 by an adhesive (note that even if 442 is not directly attached to the holder 430 it is attached to the adhesive 440 and the adhesive is attached to the holder 430 and therefore 442 is attached in this way to the holder 430).

As to claim **13** see the rejection of claim **9** and note that Appelt further teaches the integrated camera circuit and lens assembly of claim **9**, wherein:

the integrated camera circuit 420 is mounted on a circuit board 412 (see Fig. 5).

As to claim **14**, see the rejection of claim **9**, and note that Appelt further teaches the integrated camera circuit and lens module of claim **9**, further comprising:

a protective cover 440 over the integrated camera circuit 420 (see Fig. 5 and note that the claim does not require that the cover is disposed over the entire chip).

As to claim **15**, see the rejection of claim **14** and note that Appelt further teaches the integrated camera circuit and lens module of claim **14**, wherein: the protective cover 440 is a molded spacer (see Fig. 5 and note that it is inherent for the cover 440 to be molded at some point because it has a particular shape, and it provides a space between the window/lens and the chip).

As to claim **16**, see the rejection of claim **14**, and note that Appelt further teaches the camera module apparatus of claim **14**, wherein:

the protective cover is a glass sheet (see Column 3 lines 54-57 and note that at least one type of acrylate is commonly recognized as being glass, for example, Plexiglass ® is referred to as an acrylic glass, see <http://zenith.czechtrade.us/acrylic-glass>).

As to claim **27**, Appelt teaches a camera apparatus, comprising:

an integrated circuit camera apparatus 420 having thereon a photosensitive array 422 (see Column 2 lines 36-44); and

a window 442 for allowing light to impinge on the photosensitive array; wherein

the window 442 is rigidly affixed on the integrated circuit camera

apparatus 420 by a window receiving apparatus 430 made integrally on the integrated circuit camera apparatus 420 (see Column 2 lines 47-55 and note that the encapsulant 430 is made in a similar fashion to the encapsulant 130, further see Column 3 lines 61-63).

What Appelt does not teach in the present embodiment is that the window 442 is a lens. However, Appelt teaches in another embodiment replacing a planar window with a lens assembly (see Fig. 4 and Column 3 lines 33-44). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the window 442 with a lens as this would increase the intensity of light on the camera integrated circuit 420.

As to claim **28**, see the rejection of claim **27** and note that Appelt further teaches the camera apparatus of claim **27**, wherein:

the lens assembly has a housing 430 for receiving at least one lens 442.

As to claim **30**, see the rejection of claim **27** and note that Appelt further teaches the camera apparatus of claim **27**, wherein:

the integrated circuit camera apparatus 420 is affixed to a circuit board 412 (see Fig. 5).

As to claim **31**, see the rejection of claim **27** and note that Appelt further teaches the camera apparatus of claim **27**, wherein:

the integrated circuit camera apparatus 420 is affixed to a circuit board

412; and

the lens assembly receiving apparatus 430 is formed at least partially on the circuit board (see Fig. 5).

As to claim **32**, see the rejection of claim **31** and note that the lens assembly receiving apparatus 430 is a molded receptacle (see Column 2 lines 47-55 and note that the encapsulant 430 is made in a similar fashion to the encapsulant 130, further see Column 3 lines 61-63).

as to claim **33**, see the rejection of claim **31** and note that the lens assembly receiving 442 is rigidly affixed within the lens assembly receiving apparatus 430 (see Fig. 5).

As to claim **34**, see the rejection of claim **31** and note that Appelt further teaches the camera apparatus of claim **31**, wherein:

the lens assembly 442 is affixed within the lens assembly receiving apparatus 430 by an adhesive 440 (see Column 3 lines 54-62).

As to claim **35**, see the rejection of claim **27** and note that Appelt further teaches the camera apparatus of claim **27**, further comprising:

a protective cover 440 fixed between the integrated circuit camera apparatus 420 and the lens assembly 442 by the lens assembly receiving apparatus 430 (see Fig. 430).

As to claim **36**, see the rejection of claim **35** and note that Appelt further teaches the integrated camera circuit and lens module of claim **35**, wherein: the protective cover 440 is a molded spacer (see Fig. 5 and note that it is inherent for the cover 440 to be molded at some point because it has a particular shape, and it provides a space between the window/lens and the chip).

As to claim **37**, see the rejection of claim **35**, and note that Appelt further teaches the camera module apparatus of claim **35**, wherein:

the protective cover is a glass sheet (see Column 3 lines 54-57 and note that at least one type of acrylate is commonly recognized as being glass, for example, Plexiglass ® is referred to as an acrylic glass, see <http://zenith.czechtrade.us/acrylic-glass>).

As to claim **38**, see the rejection of claim **35** and note that Appelt further teaches the camera apparatus of claim **35**, wherein:

the lens assembly receiving apparatus 430 is an overmold formed over the integrated circuit camera apparatus 420 (see Column 2 lines 47-55 and note that the encapsulant 430 is made in a similar fashion to the encapsulant 130, further see Column 3 lines 61-63).

As to claim **39**, Appelt teaches a camera module apparatus, comprising:  
a camera integrated circuit chip 420 (see Fig. 5);

a window 442; and

means for holding 430 the window 442 such that the window 442 is positioned thereby in relation to the integrated circuit chip 420, said means for holding the window 442 including a component 430 molded on the camera integrated circuit chip 420 (see Column 2 lines 47-55 and note that the encapsulant 430 is made in a similar fashion to the encapsulant 130, further see Column 3 lines 61-63).

What Appelt does not teach in the present embodiment is that the window 442 is a lens. However, Appelt teaches in another embodiment replacing a planar window with a lens assembly (see Fig. 4 and Column 3 lines 33-44). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the window 442 with a lens as this would increase the intensity of light on the camera integrated circuit 420.

As to claim 46, see the rejection of claim 1 and note that Appelt further teaches the camera module of claim 1, wherein:

a top surface of the camera integrated circuit chip 420 includes a sensor array 422 (see Column 2 lines 36-44 and note that the optical elements include optical sensors or image sensors); and

the molding 430 is adhered to the top surface (see Fig. 5).

As to claim 47, see the rejection of claim 9 and note that Appelt further teaches the integrated camera circuit and lens module of claim 9, wherein:

a top surface of the integrated camera circuit chip 420 includes a sensor array 422 (see Column 2 lines 36-44 and note that the optical elements include optical sensors or image sensors); and

the molding 430 is adhered to the top surface (see Fig. 5).

As to claim **48**, see the rejection of claim **27** and note that Appelt further teaches the integrated camera circuit and lens module of claim **27**, wherein:

a top surface of the integrated camera circuit chip 420 includes a sensor array 422 (see Column 2 lines 36-44 and note that the optical elements include optical sensors or image sensors); and

the molding 430 is adhered to the top surface (see Fig. 5).

16. Claims **5**, **16** and **37** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 7,199,438 (Appelt) in view of US 7,009,654 (Kuno).

As to claim **5**, see the rejection of claim **3** and note that although the Examiner believes that Appelt teaches that the protective cover is a glass sheet, in the alternative Kuno teaches an infrared filter 7 made of glass that covers a camera integrated circuit chip 1. One of ordinary skill in the art recognizes the advantages of placing an IR filter in front of a camera integrated circuit chip, these advantages including at least, cutting out IR light which is invisible to the human eye to allow the camera integrated circuit chip to sense mostly visible light that is visible to the human eye. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added

an infrared filter made of glass to the invention taught by Appelt as this would allow for the exclusion of infrared rays from the camera integrated circuit.

As to claim **16**, see the rejection of claim **14** and note that although the Examiner believes that Appelt teaches that the protective cover is a glass sheet, in the alternative Kuno teaches an infrared filter 7 made of glass that covers a camera integrated circuit chip 1. One of ordinary skill in the art recognizes the advantages of placing an IR filter in front of a camera integrated circuit chip, these advantages including at least, cutting out IR light which is invisible to the human eye to allow the camera integrated circuit chip to sense mostly visible light that is visible to the human eye. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added an infrared filter made of glass to the invention taught by Appelt as this would allow for the exclusion of infrared rays from the camera integrated circuit.

As to claim **37**, see the rejection of claim **35** and note that although the Examiner believes that Appelt teaches that the protective cover is a glass sheet, in the alternative Kuno teaches an infrared filter 7 made of glass that covers a camera integrated circuit chip 1. One of ordinary skill in the art recognizes the advantages of placing an IR filter in front of a camera integrated circuit chip, these advantages including at least, cutting out IR light which is invisible to the human eye to allow the camera integrated circuit chip to sense mostly visible light that is visible to the human eye. Therefore it would have been obvious to



one of ordinary skill in the art at the time the invention was made to have added an infrared filter made of glass to the invention taught by Appelt as this would allow for the exclusion of infrared rays from the camera integrated circuit.

17. Claims **17-26** and **40-45** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 7,009,654 (Kuno) in view of US 7,199,438 (Appelt).

As to claim **17**, Kuno teaches a method for producing a camera module, comprising:

- placing a receptacle 4 over an integrated circuit 1;

- inserting a lens assembly 3 into the receptacle 4; and

- securing the lens assembly into the receptacle (Column 6 lines 41-44).

What Kuno does not teach is molding the receptacle over an integrated circuit. However, Appelt teaches molding a receptacle 430 over an integrated circuit 420. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have molded the receptacle 4 of Kuno as this would allow for mass producing camera modules at a reduced manufacturing cost and in matrix array.

As to claim **18**, see the rejection of claim **17** and note that Kuno further teaches the method of claim **17**, wherein:

- the lens assembly 3 is secured to the receptacle 4 by an adhesive (Column 6 lines 41-44 of Kuno).

As to claim **19**, see the rejection of claim **17** and note that Kuno in view of Appelt further teaches the method of claim **17**, wherein:

the integrated circuit 1 is secured to a circuit board 2 before the receptacle is molded over the integrated circuit 1 (Column 7 lines 18-22).

As to claim **20**, see the rejection of claim **17** and note that Kuno further teaches the method of claim **17**, wherein:

the receptacle 4 includes a recessed portion for receiving the lens assembly 3 (see Figs. 1 and 4).

As to claim **21**, see the rejection of claim **20** and note that Kuno further teaches the method of claim **20**, wherein:

the recess portion includes a projection for fixing the distance of the lens assembly 3 from the integrated circuit 1 (see Figs. 1 and 4).

As to claim **22**, see the rejection of claim **17** and note that Kuno further teaches the method of claim **17**, wherein:

the camera module is affixed to a flex circuit 2 (Column 5 lines 42-47).

As to claim **23**, see the rejection of claim **17** and note that Kuno further teaches the method of claim **17**, further comprising:

placing a protective cover 7 over the integrated circuit 1 (see Figs. 1 and 4).

As to claim **24**, see the rejection of claim **23** and note that Kuno in view of Appelt further teaches the method of claim **23**, wherein:

the step of placing the protective cover 7 over the integrated circuit 1 occurs during the step of molding a receptacle 4 over the integrated circuit 1 (see Figs. 1 and 4 and note that it is inherent that the protective cover would have to be placed before the molding is carried out as otherwise it could not be placed above the integrated circuit and the molding material could abut the integrated circuit directly).

As to claim **25**, see the rejection of claim **23** and note that Kuno further teaches the method of claim **23**, wherein: the protective cover is a molded spacer (see Fig. 1 and note that 7 is a spacer between the molding 4 and the integrated circuit 1).

As to claim **26**, see the rejection of claim **23** and note that Kuno further teaches the method of claim **23**, wherein: the protective cover is a glass plate (Column 6 lines 5-9).

As to claim **40**, see the rejection of claim **17** and note that Kuno in view of Appelt further teaches the method of claim **17**, wherein: the step of molding the receptacle 4 over the integrated circuit 1 includes contacting a top surface of the integrated circuit 1 with a mold insert (note that if the molding is carried out in a

manner such as that taught in Appelt then this step is inherent as the receptacle 430 does not cover the entire surface of the integrated circuit 420 and therefore there must be some sort of mold insert contacting the integrated circuit as otherwise the integrated circuit would be entirely covered by the receptacle 430).

As to claim **41**, see the rejection of claim **40** and note that Kuno in view of Appelt further teaches the method of claim **40**, wherein: the mold insert includes a compliant surface to protect the integrated circuit 420 (in light of the rejection of claim **40** there must be a surface that contacts the integrated circuit and therefore protects it during the molding; as to the surface being compliant, all surfaces are compliant to some degree).

As to claim **42**, see the rejection of claim **17** and note Kuno does not teach molding receptacles or attaching receptacles over a plurality of integrated circuits simultaneously. However, Appelt teaches molding receptacles 430 over a plurality of integrated circuits simultaneously (see Column 1 line 65 to Column 2 line 2 and note that the method of Appelt may be carried out with the substrate in matrix array). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have molded receptacles over a plurality of integrated circuits as this would allow for mass production and would further reduce the cost of an optical semiconductor package.

As to claim **43**, see the rejection of claim **17** and note Kuno does not teach

molding receptacles or attaching receptacles when the integrated circuit is physically coupled to other integrated circuits. However, Appelt teaches molding receptacles 430 over a plurality of integrated circuits simultaneously (see Column 1 line 65 to Column 2 line 2 and note that the method of Appelt may be carried out with the substrate in matrix array). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have molded receptacles over a plurality of integrated circuits as this would allow for mass production and would further reduce the cost of an optical semiconductor package.

As to claim **44**, see the rejection of claim **43** and note that this limitation is covered in the rejection of claim **43**.

As to claim **45**, see the rejection of claim **43** and note that Kuno in view of applet further teaches the method of claim **43**, wherein: the integrated circuit and the other integrated circuits are physically coupled by being mounted on a unitary substrate (see Column 1 line 65 to Column 2 line 2 and note that the Examiner interprets the substrate in matrix array as the substrate being a unitary substrate); and

the integrated circuit and the other integrated circuits are subsequently separated by dividing the unitary substrate (note that this is inherent if they are assembled on a unitary substrate and they are then packaged separately).

18. Claim **29** is rejected under 35 U.S.C. 103(a) as being unpatentable over US 7,199,438 (Appelt) in view of US Pre-Grant Publication 2004/0109079 (Fujimoto)

As to claim **29**, see the rejection of claim **27** and note that what Appelt doesn't teach is the lens assembly having a housing for receiving two lenses. However, Fujimoto teaches a lens assembly for an image sensor module that has a housing for receiving two lenses (see Fig. 1 and [0026]). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the housing of Appelt in such a fashion so as to hold two lenses as is done in the invention of Fujimoto et al. as compared to the case where a single lens is used, the use of the two lenses of Fujimoto et al. can increase the number of apertures, prevent the distortion of a captured image and provide a clear captured image.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dillon Durnford-Geszvain whose telephone number is (571) 272-2829. The examiner can normally be reached on Monday through Friday 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571) 272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dillon Durnford-Geszvain

11/30/2007

  
TUAN HO  
PRIMARY EXAMINER